AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application.

LISTING OF CLAIMS:

1. (Original) A method for performing interference cancellation in a communication system having at least a first user and a second user, comprising:

determining a regeneration factor associated with the first user based on a received signal; and

determining a regeneration factor associated with the second user based on the received signal, the regeneration factor associated with the first user being different from the regeneration factor associated with the second user, a frequency range associated with the first user having at least a portion overlapping with at least a portion of a frequency range associated with the second user, a time range associated with the first user having at least a portion overlapping with at least a portion of a time range associated with the second user.

2. (Currently amended) The method of claim 1, further comprising:

modifying a regenerated signal associated with the first user based on the determined regenerationed factor associated with the first user to produce a modified regenerated signal associated with the first user; and

modifying a regenerated signal associated with the second user based on the determined regenerated factor associated with the second user to produce a modified regenerated signal associated with the second user.

3. (Currently amended) The method of claim 2, further comprising:

regenerating an estimate of a contribution associated with the first user to the received signal based on a detected signal associated with the first user to produce the regenerated signal associated with the first user;

regenerating an estimate of a contribution associated with the second user to the received signal based on a detected signal associated with the second user to produce the regenerated signal associated with the second user;

estimating an interference signal associated with the first user based on the modified regenerated~~ion~~ signal associated with the first user;

estimating an interference signal associated with the second user based on the modified regeneration signal associated with the second user;

subtracting the interference signal associated with the second user from the received signal to produce a next-stage signal associated with the first user; and subtracting the interference signal associated with the first user from the received signal to produce a next-stage signal associated with the second user.

4. (Original) The method of claim 1, further comprising:

receiving a first portion of the received signal at a first time period and a second portion of the received signal at a second time period,

the regeneration factor associated with the first user having a first value determined based on the first portion of the received signal and having a second value determined based on the second portion of the received signal,

the regeneration factor associated with the second user having a first value determined based on the first portion of the received signal and having a second value determined based on the second portion of the received signal.

5. (Currently amended) The method of claim 1, wherein the determining a regeneration factor associated with the first user and determining a regeneration factor associated with the second user are ~~is~~ iteratively repeated.

6. (Currently amended) The method of claim 1, wherein the determining a regeneration factor associated with the first user and determining a regeneration factor associated with the second user are ~~is~~ performed for the first user and the second user substantially concurrently in parallel.

7. (Currently amended) The method of claim 1, wherein the determining a regeneration factor associated with the first user and determining a regeneration factor associated with the second user are ~~is~~ performed for the first user and the second user substantially in series.

8. (Original) The method of claim 1, wherein the determining the regeneration factor associated with the first user is calculating the regeneration factor associated with the first user based on a function of a soft decision associated with the received signal.

9. (Original) The method of claim 1, wherein the determining the regeneration factor associated with the first user is calculating the regeneration factor associated with the first user based on a function of a likelihood ratio associated with the received signal.

10. (Original) The method of claim 1, wherein the determining the regeneration factor associated with the first user is calculating the regeneration factor associated with the first user based

on a hyperbolic tangent function of a likelihood ratio associated with the received signal.

11. (Original) The method of claim 1, wherein the determining the regeneration factor associated with the first user is calculating the regeneration factor associated with the first user based on a hyperbolic tangent function of a soft decision associated with the received signal.

12. (Original) The method of claim 1, wherein:

the first user is associated with a first communication cell, and

the second user is associated with a soft handoff from a second communication cell to the first communication cell.

13. (Currently amended) A method for performing interference cancellation in a communication system, comprising:

receiving a signal associated with a plurality of users to produce a received signal;

determining a plurality of regeneration factors associated with a plurality of users based on the received signal, a frequency range associated with a first user from the plurality of users having at least a portion overlapping with at least a portion of a frequency range associated with a second user from the plurality of users, a time range associated with the first user from the plurality of users having at least a portion overlapping with at least a portion of a time range associated with the second user from the plurality of users; and

modifying a regenerated signal associated with each user from the plurality of users based on the determined regenerationed factor associated with that user to produce a modified regenerated signal for each user.

14. (Original) The method of claim 13, wherein each regeneration factor from the plurality of regeneration factors being uniquely associated with a user from the plurality of users.

15. (Original) The method of claim 13, wherein each regeneration factor from the plurality of regeneration factors is determined separately.

16. (Original) The method of claim 13, further comprising:

regenerating an estimate of a contribution to the received signal associated with each user from the plurality of users based on a detected signal to produce the regenerated signal associated with each user from the plurality of users;

estimating an interference signal associated with each user from the plurality of users based on the modified regeneration signal associated with each user; and

subtracting, for each user from the plurality of users, the interference signal associated with each remaining user from the received signal associated with that user to produce a next-stage signal associated with that user.

17. (Original) The method of claim 13, wherein the determining and the modifying are iteratively repeated.

18. (Original) The method of claim 13, wherein the determining and the modifying are performed substantially concurrently in parallel for each user from the plurality of users.

19. (Original) The method of claim 13, wherein the determining and the modifying are performed serially for each user from the plurality of users.

20. (Original) The method of claim 13, wherein the determining the plurality of regeneration factors is calculating the plurality of regeneration factors based on a function a soft decision associated with the received signal.

21. (Original) The method of claim 13, wherein the determining the plurality of regeneration factors is calculating the plurality of regeneration factors based on a hyperbolic function of a likelihood ratio associated with the received signal.

22. (Original) The method of claim 13, wherein the determining the plurality of regeneration factors is calculating the plurality of regeneration factors based on a hyperbolic tangent function a soft decision associated with the received signal.

23. (Original) The method of claim 13, wherein the determining the plurality of regeneration factors is calculating the plurality of regeneration factors based on a hyperbolic tanget function of a likelihood ratio associated with the received signal.

24. (Original) The method of claim 13, wherein the plurality of users are associated with one from the group of a first communication cell and a soft handoff from a second communication cell to the first communication cell.

25. (Original) A method for receiving in a communication system, comprising:

determining a plurality of soft-decision regeneration factors associated with a plurality of users, each soft-decision regeneration factor from the plurality of soft-decision regenerator factors being uniquely associated with each user from the plurality of users; and

canceling interference, for a first user from the plurality of users, from a received signal based on the plurality of soft-decision regeneration factors excluding the soft-decision regeneration factor associated with the first user.

26. (Original) An apparatus, comprising:

a first regeneration-factor processor, the first regeneration-factor processor determining a regeneration factor associated with a first user based on a received signal; and

a second regeneration-factor processor coupled to the first regeneration-factor processor, the second regeneration-factor processor determining a regeneration factor associated with a second user based on the received signal, a frequency range associated with the first user having at least a portion overlapping with at least a portion of a frequency range associated with the second user, a time range associated with the first user having at least a portion overlapping with at least a portion of a time range associated with the second user.

27. (Currently amended) The apparatus of claim 26, further comprising:

a first modified-signal generator coupled to the first regeneration~~or~~-factor processor, the first modified-signal generator receiving the regeneration~~or~~-factor signal associated with the first user from the first regeneration-factor processor and receiving a regenerated signal associated with the first user, the first modified-signal generator modifying the regenerated signal associated with the first user based on the regeneration-factor ~~signal~~ associated with the first user; and

a second modified-signal generator coupled to the second ~~first~~ regeneration~~or~~-factor processor, the second modified-signal generator receiving the regeneration~~or~~-factor signal associated with the second user from the second regeneration-factor processor and

receiving a regenerated signal associated with the second user, the second modified-signal generator modifying the regenerated signal associated with the second user based on the regeneration-factor ~~signal~~ associated with the second user.

28. (Currently amended) The apparatus of claim 27~~6~~, further comprising:

an interference estimator coupled to the first modified-signal generator and the second modified-signal generator, the interference estimator estimating an interference signal associated with the second user, the interference estimator subtracting the interference signal associated with the second user from the received signal to produce a next-stage signal associated with the first user.

29. (Original) The apparatus of claim 28, further comprising:

the interference estimator estimating an interference signal associated with the first user, the interference estimator subtracting the interference signal associated with the first user from the received signal to produce a next-stage signal associated with the second user.

30. (Original) The apparatus of claim 27, further comprising:

a first user-contribution received-signal regenerator coupled to the first modified-signal generator, the first user-contribution received-signal regenerator producing the regenerated signal associated with the first user based on the received signal, the first user-contribution received-signal regenerator including a channel estimator associated with a low-pass filter determined as a function of an expected Doppler frequency associated with the first user; and

a second user-contribution received-signal regenerator coupled to the first modified-signal generator, the second user-contribution received-signal regenerator producing the regenerated signal associated with the second user based on the received signal, the second user-contribution received-signal regenerator including a channel estimator associated with a low-pass filter determined as a function of an expected Doppler frequency associated with the second user.

31. (Original) The apparatus of claim 27, further comprising:

a first user-contribution received-signal regenerator coupled to the first modified-signal generator, the first user-contribution received-signal regenerator producing the regenerated signal associated with the first user based on the received signal, the first user-contribution received-signal regenerator including a channel estimator, the channel estimator of the first user-contribution received-signal regenerator estimating a phase and an amplitude of each multipath component associated with the received signal based on a pilot signal; and

a second user-contribution received-signal regenerator coupled to the first modified-signal generator, the second user-contribution received-signal regenerator producing the regenerated signal associated with the second user based on the received signal, the second user-contribution received-signal regenerator including a channel estimator, the channel estimator of

the second user-contribution received-signal regenerator estimating a phase and an amplitude of each multipath component associated with the received signal based on the pilot signal.

32. (Currently amended) The apparatus of claim 26, wherein the first regeneration-factor processor determines the regeneration factor associated with a first user based on a received signal and the second regenerator-factor processor determines the regeneration factor associated with a second user based on a received signal repeatedly in an iterative manner.

33. (Currently amended) The apparatus of claim 26, wherein the first regeneration-factor processor determines the regeneration factor associated with a first user based on a received signal and the second regenerator-factor processor determines the regeneration factor associated with a second user based on a received signal substantially concurrently in parallel.

34. (Currently amended) The apparatus of claim 26, wherein the first regeneration-factor processor determines the regeneration factor associated with a first user based on a received signal and the second regenerator-factor processor determines the regeneration factor associated with a second user based on a received signal substantially in series.

35. (Original) The apparatus of claim 26, wherein the first regeneration-factor processor determines the regeneration factor associated with the first user by calculating the regeneration factor associated the first user based on a function of a soft decision associated with the received signal.

36. (Original) The apparatus of claim 26, wherein the first regeneration-factor processor

determines the regeneration factor associated with the first user by calculating the

regeneration factor associated with the first user based on a function of a likelihood ratio associated with the received signal.

37. (Original) The apparatus of claim 26, wherein the first regeneration-factor processor determines the regeneration factor associated with the first user is calculating the regeneration factor associated with the first user based on a hyperbolic tangent function of a likelihood ratio associated with the received signal.

38. (Original) The apparatus of claim 26, wherein the first regeneration-factor processor determines the regeneration factor associated with the first user is calculating the regeneration factor associated with the first user based on a hyperbolic tangent function of a soft decision associated with the received signal.

39. (Original) The apparatus of claim 26, wherein:

the first user is associated with a first communication cell, and

the second user is associated with a soft handoff from a second communication cell to the first communication cell.

40. (Currently amended) An apparatus, comprising:

a plurality of regeneration-factor generators determining a plurality of regeneration factors associated with a plurality of users based on a received signal to produce a plurality of regeneration-factor signals, a frequency range associated with a first user from the plurality of users having at least a portion overlapping with at least a portion of a frequency range associated with a second user from the plurality of users, a time range associated with the first user from the plurality of users having at least a portion overlapping with at least a portion of a time range associated with the second user from the plurality of users; and

a plurality of modified-signal generators coupled to the plurality of regenerator-factor generators~~processors~~, the plurality of modified-signal generators receiving the plurality of regeneration~~or~~-factor signals from the plurality regeneration-factor generators~~processors~~ and receiving a plurality of regenerated signals, the plurality of modified-signal generators modifying the plurality of regenerated signals based on the regeneration-factor signals.

41. (Original) The apparatus of claim 40, wherein:

each regeneration-factor generator from the plurality of regeneration-factor generators being uniquely associated with a user from the plurality of users, each regeneration factor from the plurality of regeneration factors being uniquely associated with a user from the plurality of users.

42. (Original) The apparatus of claim 40, further comprising:

an interference estimator coupled to the plurality of modified-signal generators, the interference estimator estimating an interference signal associated with each user from the plurality of users, the interference estimator subtracting the interference signal associated with each user from the received signal to produce a next-stage signal associated with each user.

43. (Currently amended) The apparatus of claim 40, wherein at least one regeneration-factor generator~~processor~~ from the plurality of regeneration-factor generators~~processors~~ determines a plurality of regenerative factors associated with at least one used repeatedly in an iterative manner.

44. (Currently amended) The apparatus of claim 40, wherein the plurality of regeneration-factor generators~~processors~~ determines substantially concurrently in parallel.

45. (Currently amended) The apparatus of claim 40, wherein the plurality of regeneration-factor generators~~processors~~ determines substantially in series.

46. (Currently amended) The apparatus of claim 40, wherein the plurality of regeneration-factor generators~~processors~~ determines the regeneration factor associated with each user by calculating the regeneration factor associated with each user based on a function of a soft decision associated with the received signal

47. (Currently amended) The apparatus of claim 40, wherein the plurality of regeneration-factor generators~~processors~~ determines the regeneration factor associated with each user by calculating the regeneration factor associated with each user based on a function of a likelihood ratio associated with the received signal.

48. (Currently amended) The apparatus of claim 40, wherein the plurality of regeneration-factor generators~~processors~~ determines the regeneration factor associated with each user by calculating the regeneration factor associated with each user based on a hyperbolic tangent function of a likelihood ratio associated with the received signal.

49. (Currently amended) The apparatus of claim 40, wherein the plurality of regeneration-factor generators~~processors~~ determines the regeneration factor associated with each user by calculating the regeneration factor associated with each user based on a hyperbolic tangent function of a soft decision associated with the received signal.

50. (Original) The apparatus of claim 40, wherein:

the first user of the plurality of users is associated with a first communication cell, and

the second user of the plurality of users is associated with a soft handoff from a second communication cell to the first communication cell.

51. (Currently amended) An apparatus, comprising:

a regeneration-factor processor, the regeneration-factor processor determining a regeneration factor associated with each user from a plurality of users based on a received signal, a frequency range associated with a first user from the plurality of users having at least a portion overlapping with at least a portion of a frequency range associated with a second user from the plurality of users, a time range associated with the first user from the plurality of users having at least a portion overlapping with at least a portion of a time 8 range associated with the second user from the plurality of users; and

a modified-signal generator coupled to the regeneration~~or~~-factor processor, the modified-signal generator receiving the regeneration~~or~~-factor signal associated with each user from the regeneration-factor processor and receiving a regenerated signal associated with each user, the modified-signal generator modifying the regenerated signal associated with that user based on the regeneration-factor signal associated with that user,

the regeneration-factor processor and the modified-signal generator operating in series for each user from the plurality of users.

52. (Currently amended) An apparatus, comprising:

means for determining a regeneration factor associated with a~~the~~ first user based on a received signal; and

means for determining a regeneration factor associated with a~~the~~ second user based on the received signal, the regeneration factor associated with the first user being different from the regeneration factor associated with the second user, a frequency range associated with the first user having at least a portion overlapping with at least a portion of a frequency range associated with the second user, a time range associated with the first user having at least a portion overlapping with at least a portion of a time range associated with he second user.

53. (Original) A method for performing channel estimation within a communication system, comprising:

determining a cutoff frequency based on an expected Doppler frequency associated with a first user; and

estimating a phase and an amplitude of each multipath component associated with a received signal based on a pilot signal and a low-pass filter having the cutoff frequency.

54. (Original) A method for performing channel estimation within a communication system, comprising:

determining a cutoff frequency based on an expected Doppler frequency associated with a first user; and

low-pass filtering a plurality of rake finger signals based on a pilot signal and the determined cutoff frequency to produce an estimated phase and an estimated amplitude of each multipath component associated with a received signal.